

Serial No.: 09/079,471

Group Art Unit: 3761

IN THE CLAIMS

Please amend the Claims as follows.

1. (Currently Amended) An apparatus for providing ~~roof support~~ a primary roof control support in an underground mine, comprising:

(a) a round[, ] or oval dome-shaped ~~support member having an extended lateral surface for contacting an inside roof of an underground mine~~ bearing plate for contacting, supporting, and compressing a mine roof in an underground mine; and

(b) a center aperture in said ~~support member for accommodating a roof bolt such that said roof bolt can be passed through said support member to secure said support member to the roof of said underground mine~~ bearing plate for receiving a roof bolt when installed in said mine roof;[.]

(c) apertures on said bearing plate for hanging cables and wires and "J" hooks;

(d) a recessed center on said bearing plate for concealing a head on said roof bolt when installed in said mine roof and for providing a lock washer effect on said roof bolt; and

(e) a center recessed area on said bearing plate adapted to cause an outside rim to contact said mine roof first and then to compress said mine roof at a 30 to 45 degree angle.

2. (Currently Amended) The apparatus as set forth in Claim 1, ~~further comprising a base plate associated with said roof bolt,~~

Serial No.: 09/079,471

Group Art Unit: 3761

~~wherein said roof bolt passing through said base plate is adapted such that said support member is interposed between said base plate and the inside roof of said underground mine~~ wherein said bearing plate is adapted to replace a base plate operating in conjunction with said bearing plate.

3. (Currently Amended) The apparatus as set forth in Claim 1, ~~wherein said support member is recessed and said extended lateral surface comprises a circular configuration in the general form of a plate~~ wherein said round or oval shaped dome is adapted to cause outer rim contact first.

4. (Currently Amended) The apparatus as set forth in Claim 3, wherein said ~~support member~~ bearing plate features a center deflection with respect to the radial edge of said ~~support member~~ bearing plate such that said ~~support member~~ bearing plate is convex with respect to the mine roof surface.

5. (Currently Amended) The apparatus as set forth in Claim 2, wherein said ~~support member~~ bearing plate is elliptical with a circular configuration in the form of a plate.

6. (Currently Amended) The apparatus as set forth in Claim 5, wherein said ~~support member~~ bearing plate features a center

Serial No.: 09/079,471  
Group Art Unit: 3761

deflection with respect to ~~the~~ a radial edge of said ~~support member bearing plate~~ such that said ~~support member bearing plate~~ is convex with respect to the mine roof surface.

7. (Currently Amended) In combination with a roof bolt ~~and associated base plate~~ used for primary roof support in an underground mine, the improvement comprising: a round dome-shaped ~~support member bearing plate~~ having an extended lateral surface for contacting an inside roof of an underground mine, and further defining an aperture therethrough such that said roof bolt can be passed through said ~~base bearing plate~~ and the aperture of said ~~support member bearing plate~~ to secure said ~~support member bearing plate~~ to the inside roof of said underground mine, with said ~~support member bearing plate~~ interposed between said ~~base plate roof bolt~~ and ~~the~~ said inside roof of said underground mine.

8. (Currently Amended) The apparatus as set forth in Claim 7, wherein said ~~support member bearing plate~~ has a substantially circular or elliptical configuration.

9. (Currently Amended) The apparatus as set forth in Claim 8,

Serial No.: 09/079,471  
Group Art Unit: 3761

wherein said ~~support member~~ bearing plate features a center deflection with respect to the radial edge of said ~~support member~~ bearing plate such that said ~~support member~~ bearing plate is convex with respect to the mine roof surface.

10. (Currently Amended) A method for providing ~~primary and secondary roof support~~ a primary roof support in an underground mine, comprising the steps of:

(a) ~~drilling a hole through a roof of the underground mine and into upper level rock strata~~ positioning a roof bolting machine in an area to be secured or bolted in an underground mine;

(b) ~~inserting a container of adhesive material into said hole~~ drilling a hole into a mine roof through an immediate roof into an upper strata to a specified depth deeper than the length of a roof bolt being used;

(c) ~~positioning a lateral support member adjacent the roof of said underground mine centered over said hole~~ inserting a plastic tube of epoxy resin and hardener into the drilled hole;

(d) ~~positioning a round dome-shaped base plate adjacent said lateral support member~~ inserting said roof bolt through a aperture of a roof bolt plate; and

(e) ~~inserting a roof bolt through said base plate and said~~

Serial No.: 09/079,471  
Group Art Unit: 3761

~~support member into said hole, the insertion of said roof bolt~~  
~~fracturing the container of adhesive material, thus allowing said~~  
~~adhesive material to be distributed around said roof bolt,~~  
~~securing said roof bolt in said hole and securing said base plate~~  
~~and support member to the roof of said underground mine for~~  
~~providing primary and secondary roof support[.]~~ centering a bolt  
head on said roof bolt in a drill machine rotation head;

(f) applying upward pressure and rotation as said roof bolt  
is pushed into said drilled hole in said roof, breaking the tube  
of epoxy resin and mixing the resin and hardener together and  
forcing the mixture into any cracks or separations in the strata;  
and

(g) subsequently after the plate and bolt head reach within  
about an inch of the roof, stopping the upward pressure and  
remaining spinning, stopping the spinning motion and applying the  
full upward pressure of the bolting machine to push the roof bolt  
and center of the plate to compress the immediate roof, subse-  
quently lowering the bolter head and observing the quality of  
installation by noticing the lock washer effect on the head of  
the bolt, and observing whether the bolt head lowers with the  
bolting machine, such that the installed bolt has lost its  
anchorage to form a failed bolt, then installing another bolt to  
replace the failed bolt, and moving to the next area in the  
underground mine to be secured.

Serial No.: 09/079,471  
Group Art Unit: 3761

11. (Currently Amended) The method as set forth in [c]Claim 10, wherein said ~~support member features a center deflection with respect to the radial edge of said support member such that said support member is convex with respect to the mine roof surface~~ roof bolt plate features a round or oval dome-shaped plate and said specified depth is in a range of approximately three to four inches.

12. (Currently Amended) A roof bolt bearing plate apparatus, comprising:

(a) [A] a round or oval ~~elliptical~~ dome-shaped bearing plate;

(b) [A] a recessed center higher than the outer rim, wherein said center remains recessed until forced and put under pressure; and

(c) a plurality of strengthening ribs to adjust the strength as needed for ~~extreme~~ heavier or broken roof conditions.

13. (Original) A roof bolt plate apparatus as set forth in Claim 12, further comprising;

(d) an outer rim only as wide as the material used to produce the plates.

Serial No.: 09/079,471

Group Art Unit: 3761

14. (Original) A roof bolt plate apparatus as set forth in Claim 13, wherein said roof bolt plate comprises a positive pressure roof support.

15. (Original) A method of supporting a roof in an underground mine, comprising:

- (a) providing a plate acting as a lock washer to the roof bolt;

- (b) providing a round or elliptical dome-shaped plate having apertures for hanging cables;

- (c) providing a plate having a recessed center lower than the outer rim and having a recessed center such that the head of the bolt will be partially protected, when installed in the roof;

- (d) providing a plate outer rim conforming to regular or irregular roof surfaces; and

- (e) providing a plate adjustable in strength by adding a plurality of ribs to the domed area of the plate.

16. (Original) A method of supporting a roof in an underground mine as set forth in Claim 15, further comprising installing and monitoring plate effectiveness by the lock washer effect in the mine.

Serial No.: 09/079,471

Group Art Unit: 3761

17. (Original) A method as set forth in Claim 15, wherein said safety plate recessed center reduces injuries to personnel and damage to the roof control system by passing equipment.

18. (Original) A method as set forth in Claim 15, further comprising providing a system for hanging cables and wires and maintaining dangerous electrical cables and wires close to the roof, and out of harms way.

19. (Original) A method as set forth in Claim 16, wherein said safety bearing plate recessed center reduces injuries to personnel and damage to the roof control system by passing equipment.

20. (Original) A method as set forth in Claim 17, further comprising providing a system for hanging cables and wires and maintaining dangerous electrical cables and wires close to the roof, and out of harms way.

21. (New) An apparatus for providing roof support in an underground mine, comprising:

(a) a round, dome-shaped bearing plate having an extended lateral surface for contacting an inside roof of an underground mine;



Serial No.: 09/079,471

Group Art Unit: 3761

(b) a center aperture in said bearing plate for accommodating a roof bolt such that said roof bolt can be passed through said bearing plate to secure said bearing plate to the roof of said underground mine;

(c) wherein said roof bolt passing through said bearing plate is adapted such that said bearing plate is interposed between said roof bolt and the inside roof of said underground mine;

(d) wherein said bearing plate is recessed and said extended lateral surface comprises a circular configuration in the general form of a plate; and

(e) wherein said bearing plate features a center deflection with respect to the radial edge of said bearing plate such that said bearing plate is convex with respect to the mine roof surface.

22. (New) An apparatus for providing roof support in an underground mine, comprising:

(a) a round, dome-shaped bearing plate having an extended lateral surface for contacting an inside roof of an underground mine;

(b) a center aperture in said bearing plate for accommodat-

Serial No.: 09/079,471

Group Art Unit: 3761

ing a roof bolt such that said roof bolt can be passed through said bearing plate to secure said bearing plate to the roof of said underground mine;

(c) wherein said roof bolt passing through said bearing plate is adapted such that said bearing plate is interposed between said roof bolt head and the inside roof of said underground mine;

(d) wherein said bearing plate is elliptical with a circular configuration in the form of a plate; and

(e) wherein said bearing plate features a center deflection with respect to the radial edge of said bearing plate such that said bearing plate is convex with respect to the mine roof surface.

23. (New) In combination with a roof bolt used for primary roof support in an underground mine, the improvement comprising: a round dome-shaped bearing plate having an extended lateral surface for contacting an inside roof of an underground mine, and further defining an aperture therethrough such that said roof bolt can be passed through said aperture of said bearing plate to secure said bearing plate to the inside roof of said underground mine, with said bearing plate interposed between said roof bolt head and the inside roof of said underground mine, wherein said

Serial No.: 09/079,471

Group Art Unit: 3761

bearing plate has a substantially circular or elliptical configuration, and said bearing plate features a center deflection with respect to the radial edge of said bearing plate such that said bearing plate is convex with respect to the mine roof surface.

24. (New) A method for providing primary and supplementary roof support in a underground mine, comprising the steps of:

(a) drilling a hole through the immediate roof of the underground mine and into upper level rock strata;

(b) inserting a container of adhesive material into said hole;

(c) inserting a roof bolt through said bearing plate into said hole, the insertion of said roof bolt fracturing the container of adhesive material, thus allowing said adhesive material to be distributed around said roof bolt, securing said roof bolt in said hole and securing said bearing plate to the roof of said underground mine for providing primary and supplementary roof support; and

(d) wherein said bearing plate features a center deflection with respect to the radial edge of said bearing plate such that said bearing plate is convex with respect to the mine roof surface.